




ADVENTURE HARDWARE G.

DATA VISUALIZATION & FORECASTING

DELIVERED BY SAMUEL MALIK

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2	Executive Summary
3	Financial & Demographics Performance
4	Market & Competitors
5	Market Basket Analysis
6	Five Years Forecast
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1

Business Overview

Adventure Hardware Group (AHG) is a global manufacturing organization with operations in America, Europe and Asia. AHG is online specialty retailer and reseller of road bikes, mountain bikes, touring bikes, components, accessories, and clothing





Executive Summary

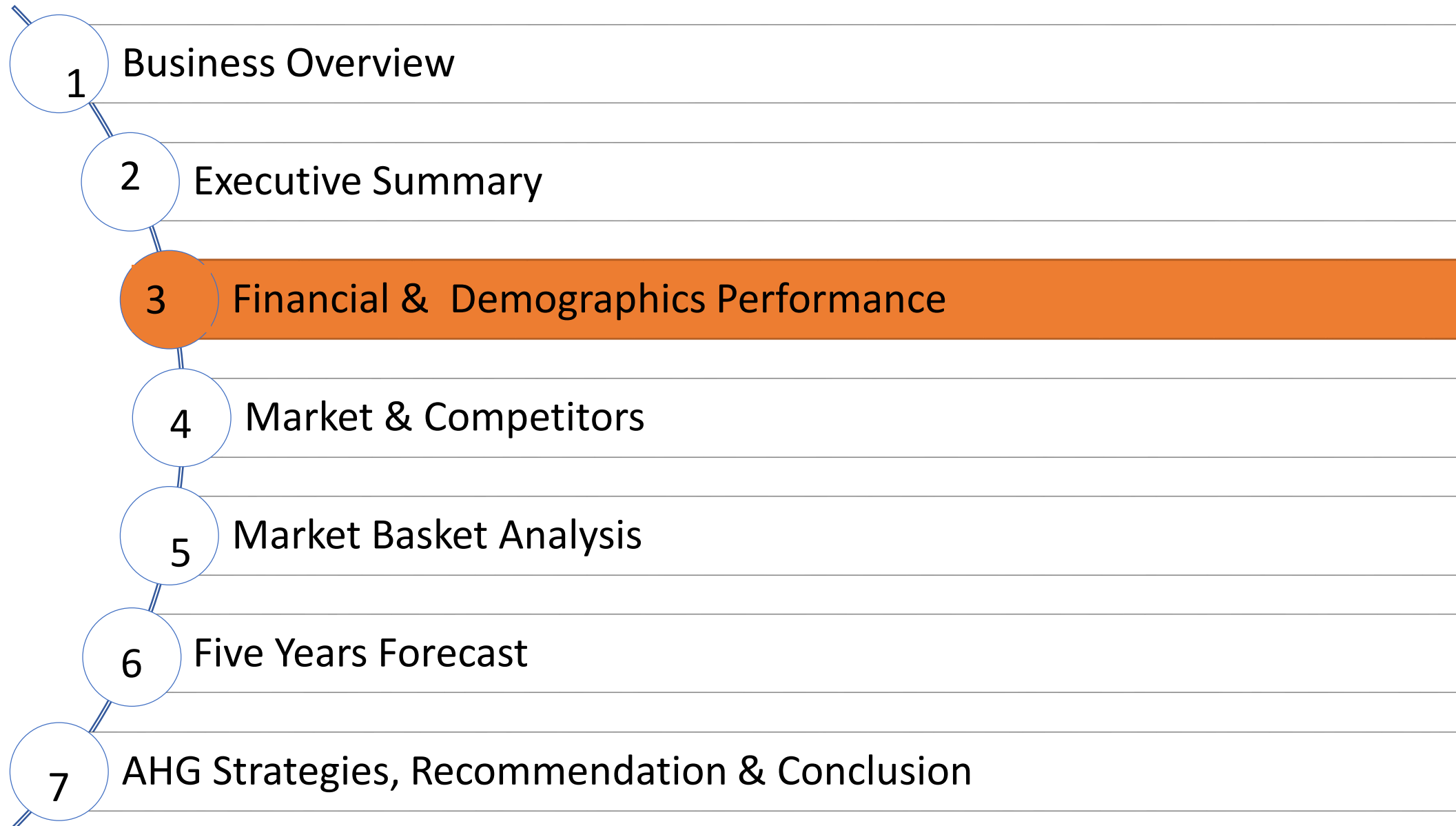
- Across the globe, AGH sales have grown 101% since the end of 2011 to 2013 (62% Online and 119% Reseller).
- There is a clear shift between May 2013 and July 2013, the number of online transactions increased exponentially by 45%. In July 2013 Sales online exceeded Reseller.
- Accessories and Bikes are driving the shift toward online by product categories. In 2013 digital sales increased by 18 for accessories and 13 for Bikes.
- Bikes is the most profitable product in the product category contributing 86% in profit. Further breakdown
 - * Road Bikes contribute 37% of the profit
 - * Mountain Bikes contribute 36% of the profit
 - * Touring Bikes contribute 13% of the profit
 - * **Online:** It represent 40% of sales with 20% profitability
 - * **Reseller:** It represent 60% of sales, however, profit is negative for 34% of total sales



Executive Summary

- **Region: Australia** generated the highest sales and is the most profitable region for **online business** contributing 31% in profit and 30% contribution to revenue generation. **Southwest in US** is the best performance in sales generation for **reseller business since 2011 with a total of 23% total over online sales** contributing 19% to revenue
- Five Year Forecast Predict
 - Online: The five forecast show online business will grow by 125%
 - Reseller: The Reseller business will grow at 41% in the next five year. The strategy of business should tilted toward digitalization
- Market Basket Analysis:
 - The products that must be sold together based on profitability are the following:
 - Online –MTB with Tire & Tubes / Road B. with Tire & Tubes / Helmets with Tire & Tubes.
 - Reseller –MTB with MTB Frames & Short & Pedals.

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3. Financial & Demographics Performance



1

Dashboard

2

Summary of Financial Information

3

Is there Shift toward Digital

4

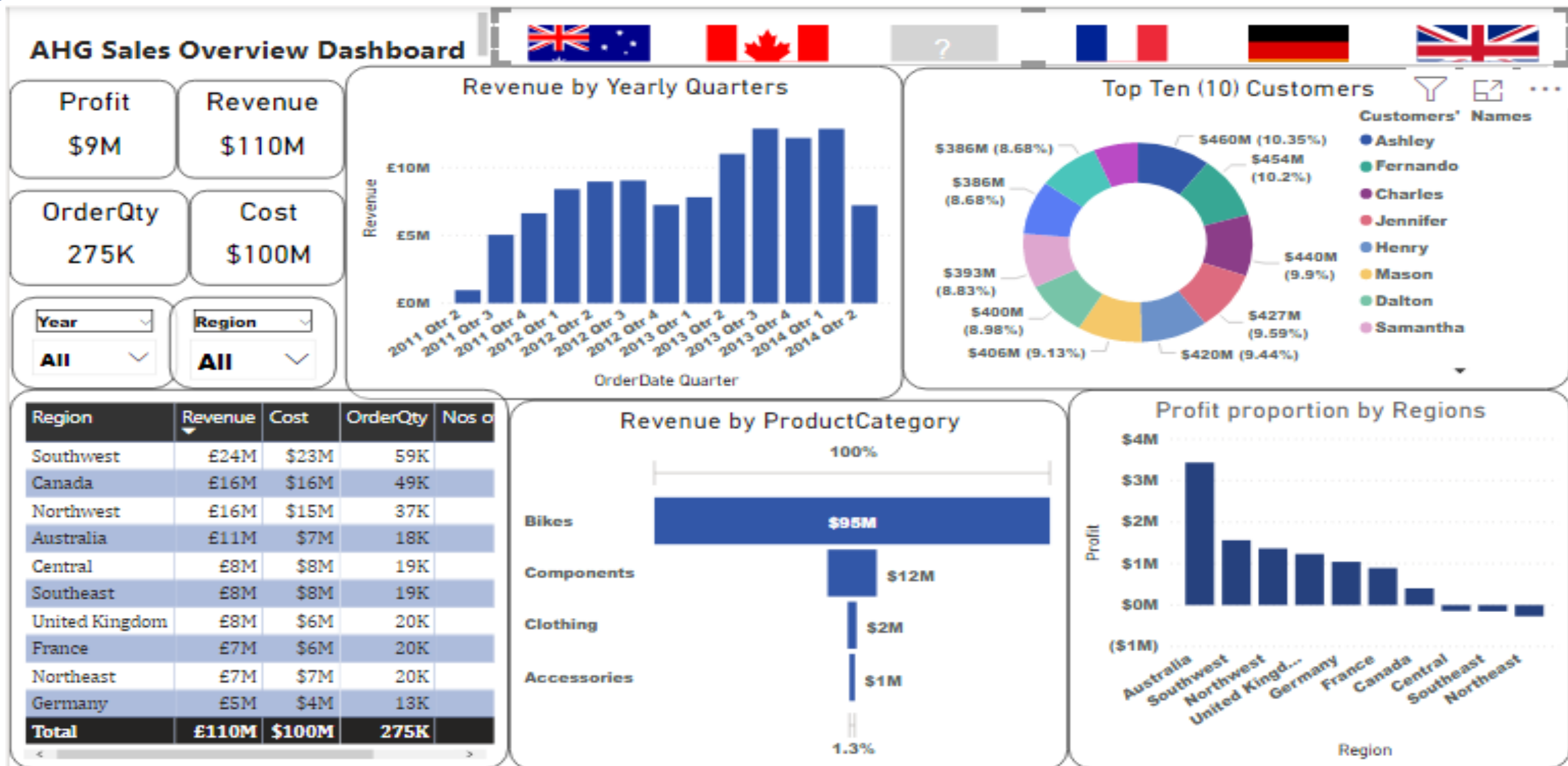
Customer Demographics

5

Which areas AHG should Improve

6

Is the business making profit



Summary of financial Info Data 04-2011 – 04-2014

Revenue, Cost & Profit by Channels

SalesChannels	Profit	Revenue	Total Cost	Item_Sold
Online Sales	\$12M	\$29M	\$18M	60K
Reseller Sales	(\$2M)	\$81M	\$83M	215K
Total	\$9M	\$110M	\$100M	275K

Product Category Sales & Profit by Channels

ProductCategory	SalesChannels	Cost	Revenue	Profit	%Total Revenue
Accessories	Online Sales	\$13M	\$22M	\$9M	0.63%
Bikes	Online Sales	\$17M	\$29M	\$11M	25.66%
Clothing	Online Sales	\$7M	\$11M	\$4M	0.31%
Accessories	Reseller Sales	\$68M	\$66M	(\$2M)	0.52%
Bikes	Reseller Sales	\$83M	\$81M	(\$2M)	60.55%
Clothing	Reseller Sales	\$78M	\$76M	(\$2M)	1.63%
Total		\$100M	\$110M	\$9M	100.00%

Summary Analysis

Reseller. It represents 73% of Sales, however the profit is negative -24%.

Online. It represent 27% of Sales, however the profit is positive +124%

Region: Online Market : Australia generated highest Sales with 31% and most profitable region with 38% of total profit

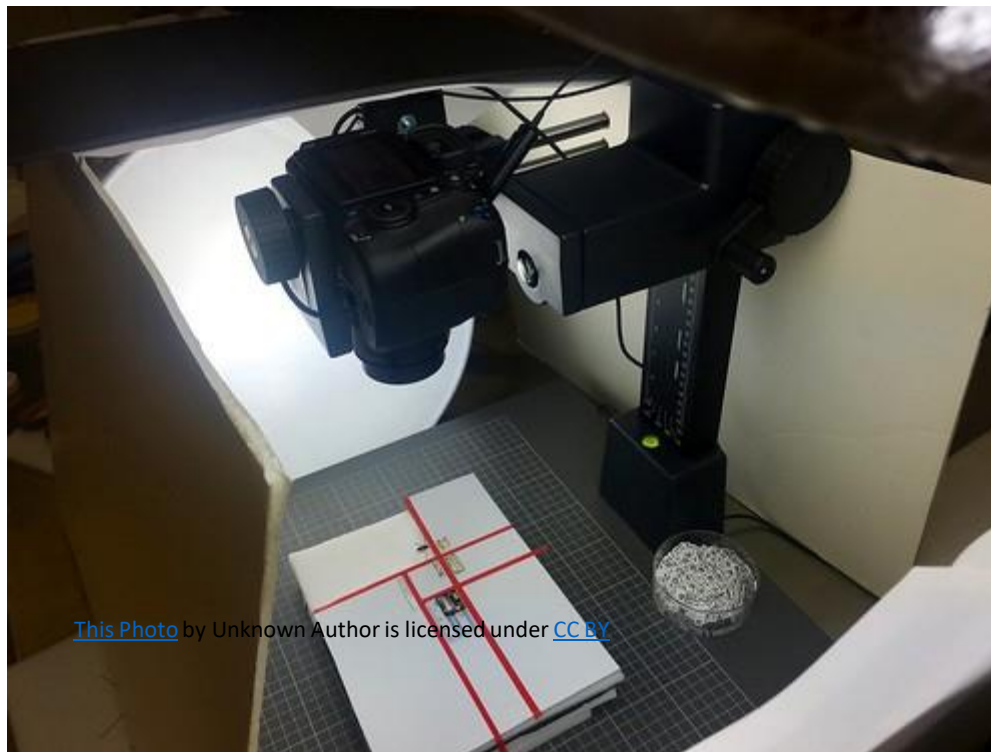
Reseller Market Southwest is best performance in Sales with 19% but with negative profit

Regions, Sales & Profit by Channels

SalesChannels	Region	Revenue	Profit	Cost	Item_Sold
Reseller Sales	Southwest	\$19M	(\$1M)	\$19M	47K
Reseller Sales	Canada	\$14M	(\$0M)	\$15M	42K
Reseller Sales	Northwest	\$13M	(\$0M)	\$13M	28K
Reseller Sales	Central	\$8M	(\$0M)	\$8M	19K
Reseller Sales	Southeast	\$8M	(\$0M)	\$8M	19K
Reseller Sales	Northeast	\$7M	(\$0M)	\$7M	20K
Online Sales	Australia	\$9M	\$4M	\$6M	13K
Reseller Sales	France	\$5M	(\$0M)	\$5M	14K
Reseller Sales	United Kingdom	\$4M	(\$0M)	\$4M	13K
Online Sales	Southwest	\$6M	\$2M	\$3M	12K
Online Sales	Northwest	\$4M	\$1M	\$2M	9K
Reseller Sales	Germany	\$2M	(\$0M)	\$2M	8K
Online Sales	United Kingdom	\$3M	\$1M	\$2M	7K
Online Sales	Germany	\$3M	\$1M	\$2M	6K
Reseller Sales	Australia	\$2M	(\$0M)	\$2M	5K
Online Sales	France	\$3M	\$1M	\$2M	6K
Online Sales	Canada	\$2M	\$1M	\$1M	8K
Online Sales	Southeast	\$0M	\$0M	\$0M	0K
Online Sales	Northeast	\$0M	\$0M	\$0M	0K
Online Sales	Central	\$0M	\$0M	\$0M	0K
Total		\$110M	\$9M	\$100M	275K

3.3

Shift Towards Digital ??



3.4

Shift Towards Digital ??

Shift Toward Digital ??

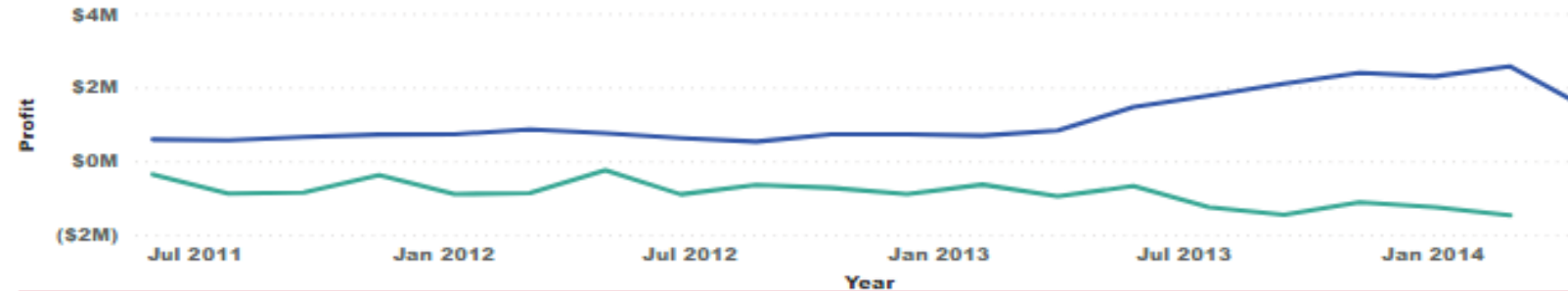
Profit by SalesChannels

SalesChannels — Online Sales — Reseller Sales



Revenue by SalesChannels

SalesChannels — Online Sales — Reseller Sales



Total_Cost by SalesChannels

SalesChannels — Online Sales — Reseller Sales

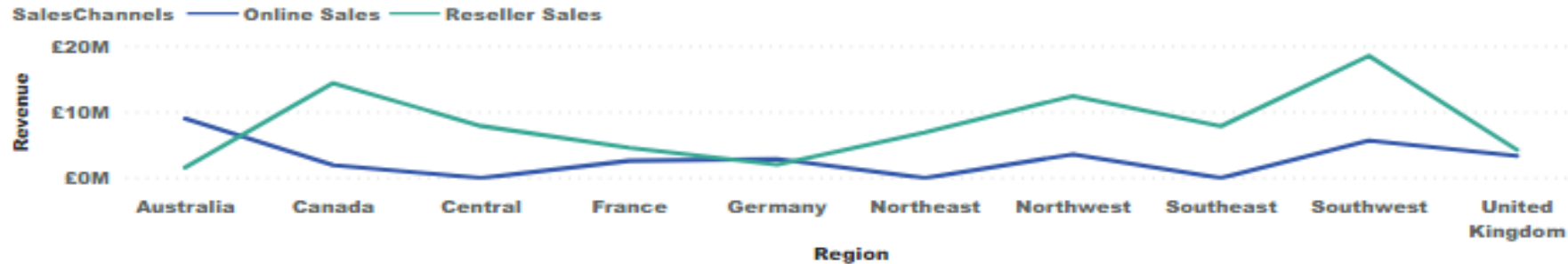


- The Reseller have provided overall greater revenue from 2011 to 2014. online revenue grew slowly but steady from May 2013
- Online Sale was adopted with greater profitability compare with reseller
- There was a clear shift between May 2013 and July 2014. The number of online transaction increased exponentially by 45%. In July 2013 the number of Transaction exceeded reseller for the first time and stay on steadily

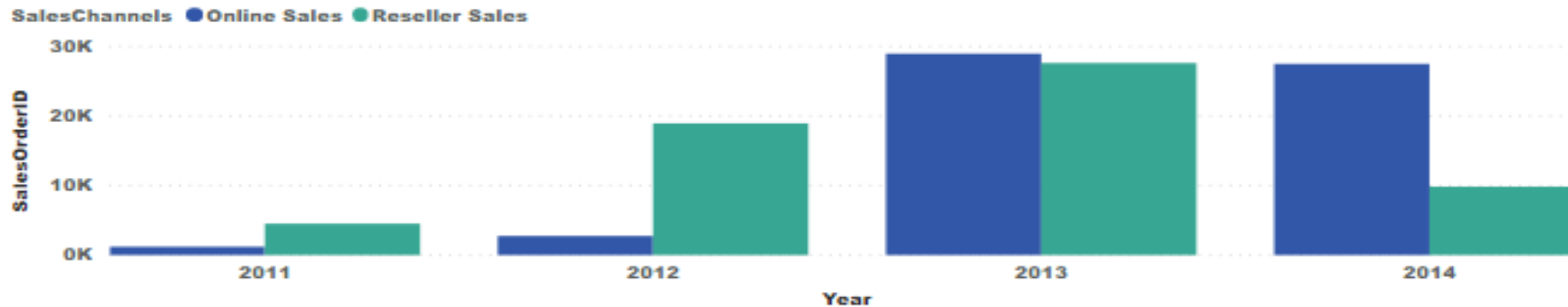
Shift Towards Digital ??

Shift Toward Digital ??

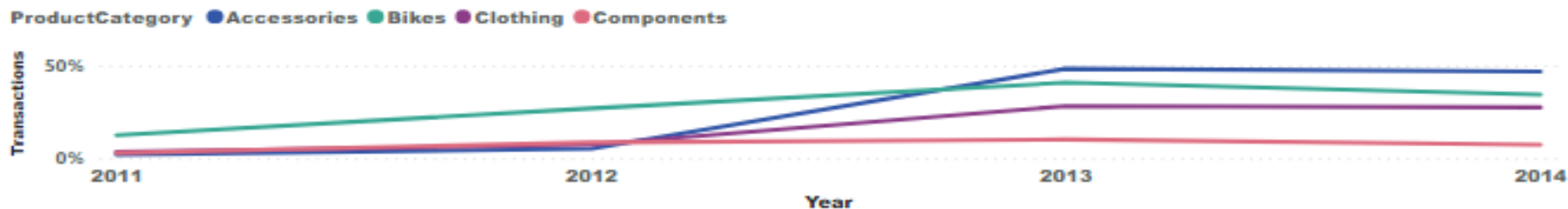
Region with Online Conversion



Significant change online vs Reseller



What is driving the shifts by product Category



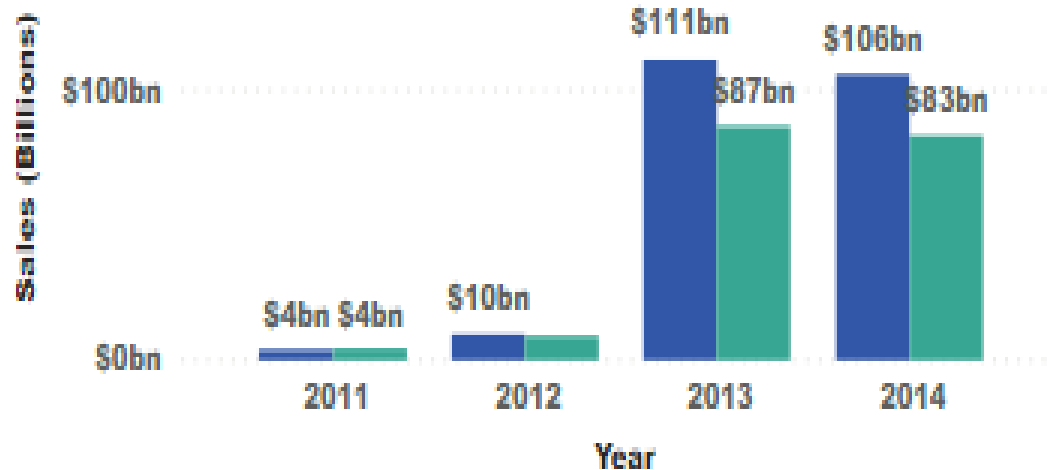
- The only region with a relevant conversion from reseller to online market is Australia
- There was significant change from 2013 showing that customers order more goods through online than reseller
- Accessories & Bikes are driving the shift toward online by product Category in 2013 digital sales increase by 18% for Accessories & 13% for Bikes

3.6

Customer Demographics

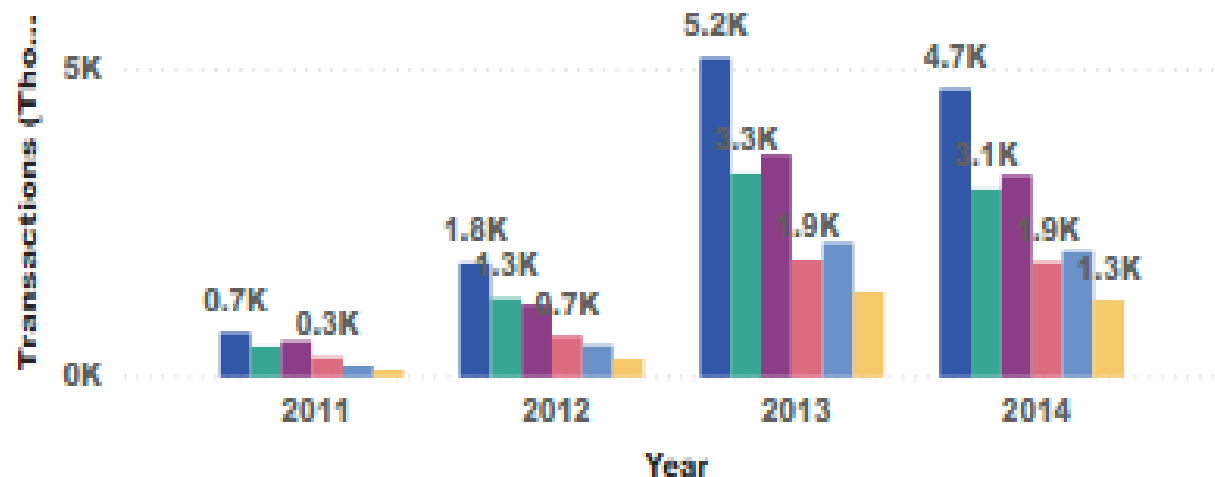
Sales by Marital_Status

Marital_Status ● M ● S



Volume of Customer by Total Children

TotalChildren ● 0 ● 1 ● 2 ● 3 ● 4 ● 5



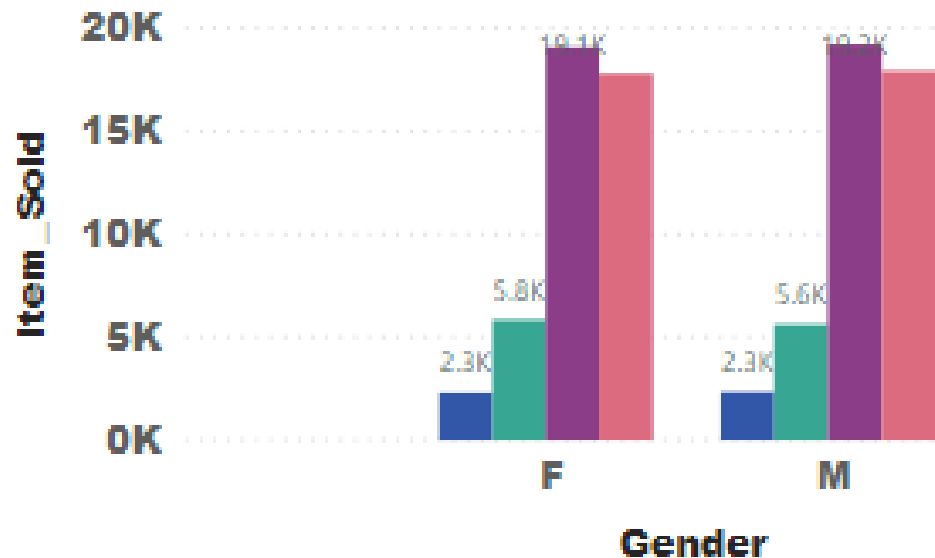
- There is a clear and constant growth in sales and volume of customers transaction for family without a child.
- There is a proportionate growth in married both for customer volume and sale

3.7

Customer Demographics

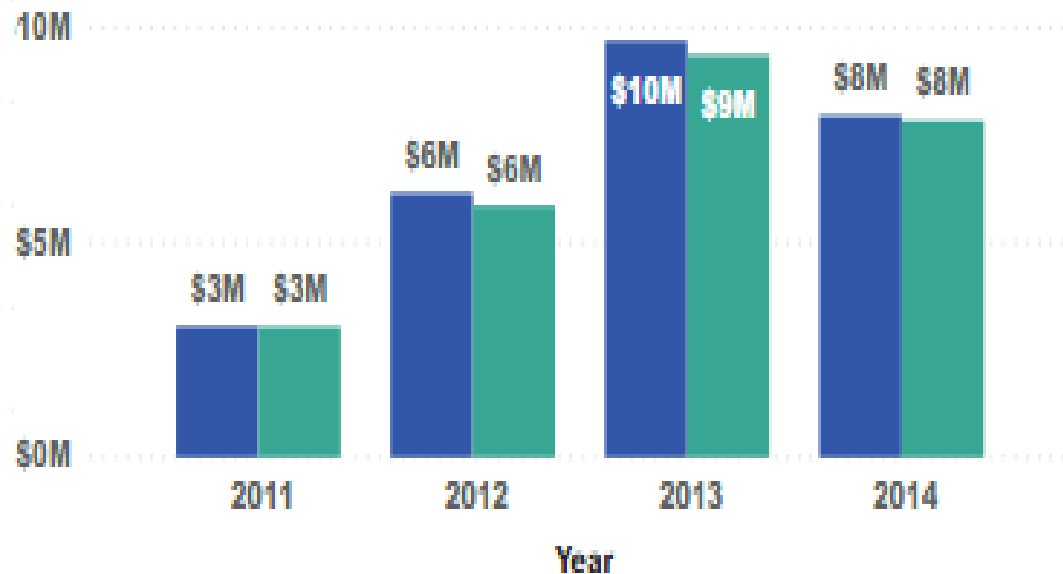
Transactions by Gender

Year ● 2011 ● 2012 ● 2013 ● 2014



Revenue by Gender

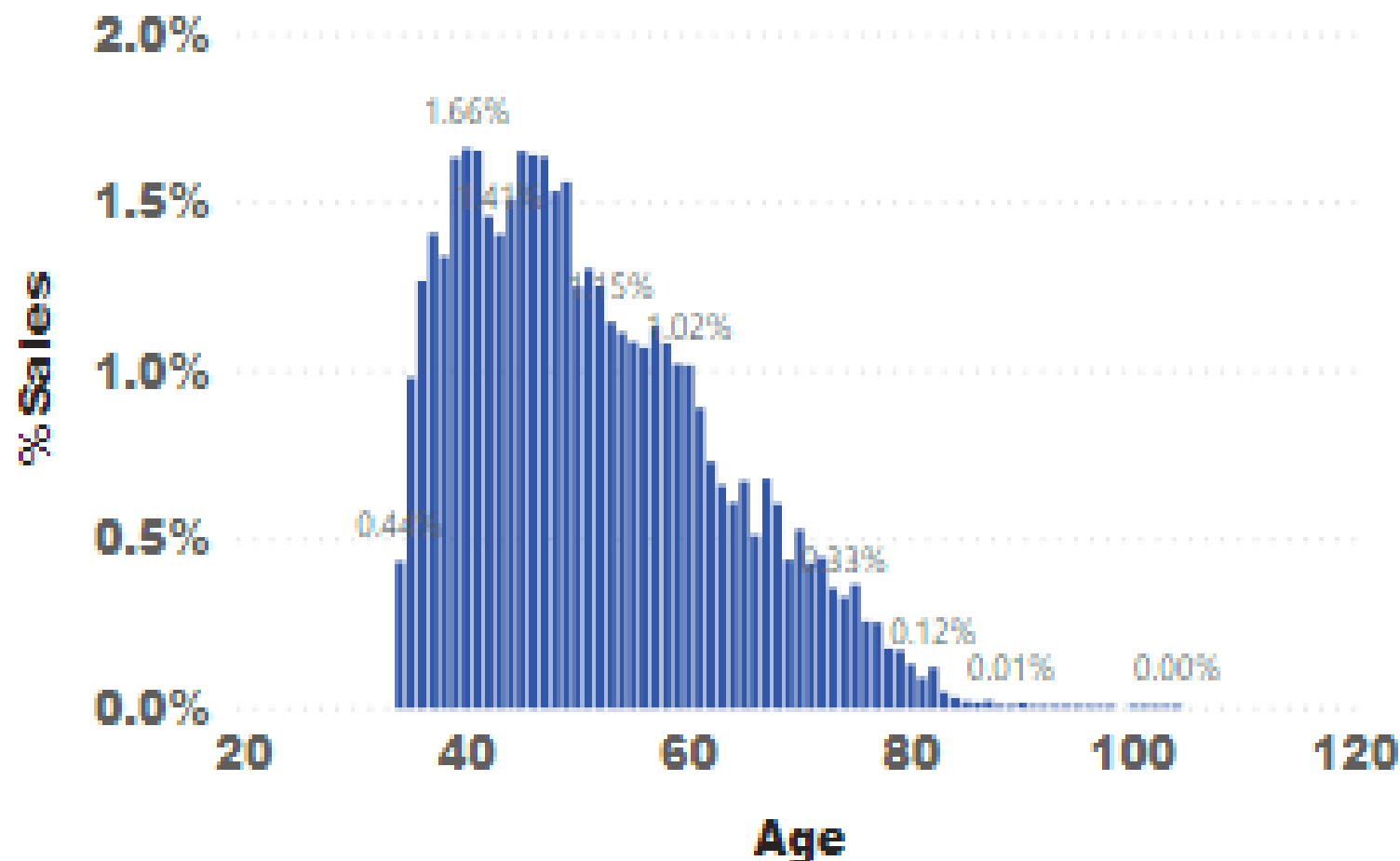
Gender ● F ● M



- Female & Male have similar proportion of Item bought
- By revenue Male & Female revenue are similar except in 2013 when female earned higher than male by 10%

- The increase in age over the year lead to decrease in sales. The average age of customers has increase from 50 in 2011 and 51.00 in 2014.

Sales by Age Group



Manufacturing



Scrapping Reason. “ Brake assembly not as ordered and Drill size too large” should review why is above the average



% Scrap by product: 10 Top products should be reviewed why is above average



The average of scrap work orders are 2.5%, above the sector, this should be reduced to at least 2%

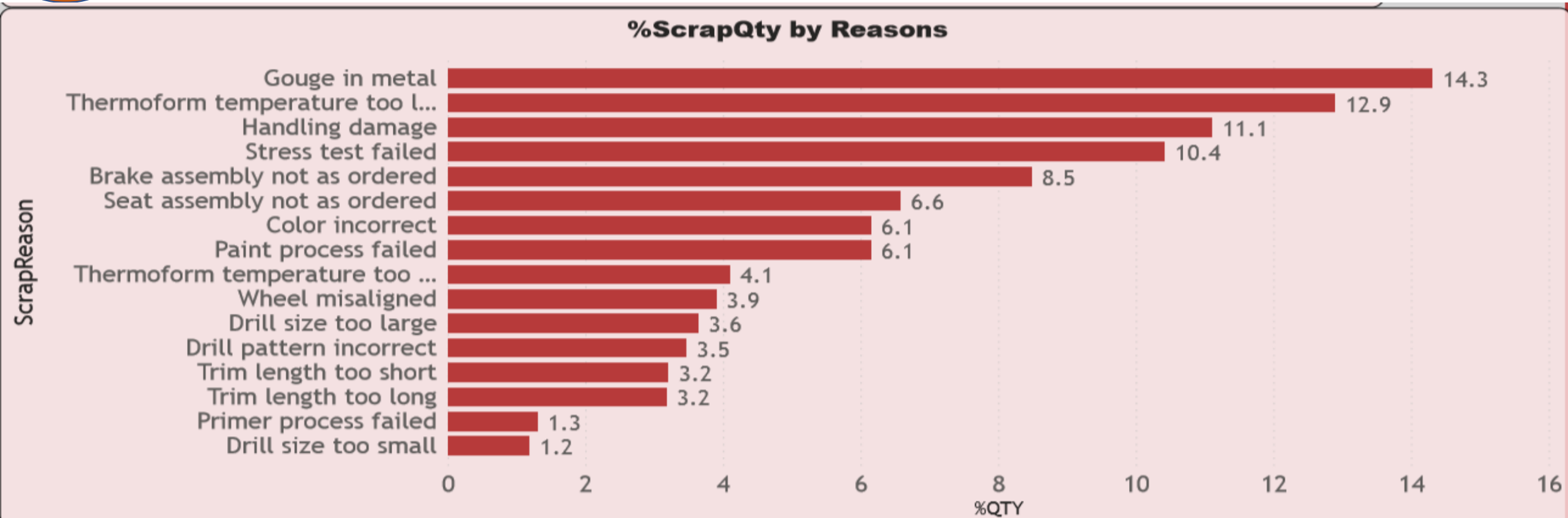


Carry out negotiations to reduce the transport cost for Cargo Transport 5 to the price of Overnight J-Fast



Alternative shipping COY/Method should be introduced to create competition & reduce cost

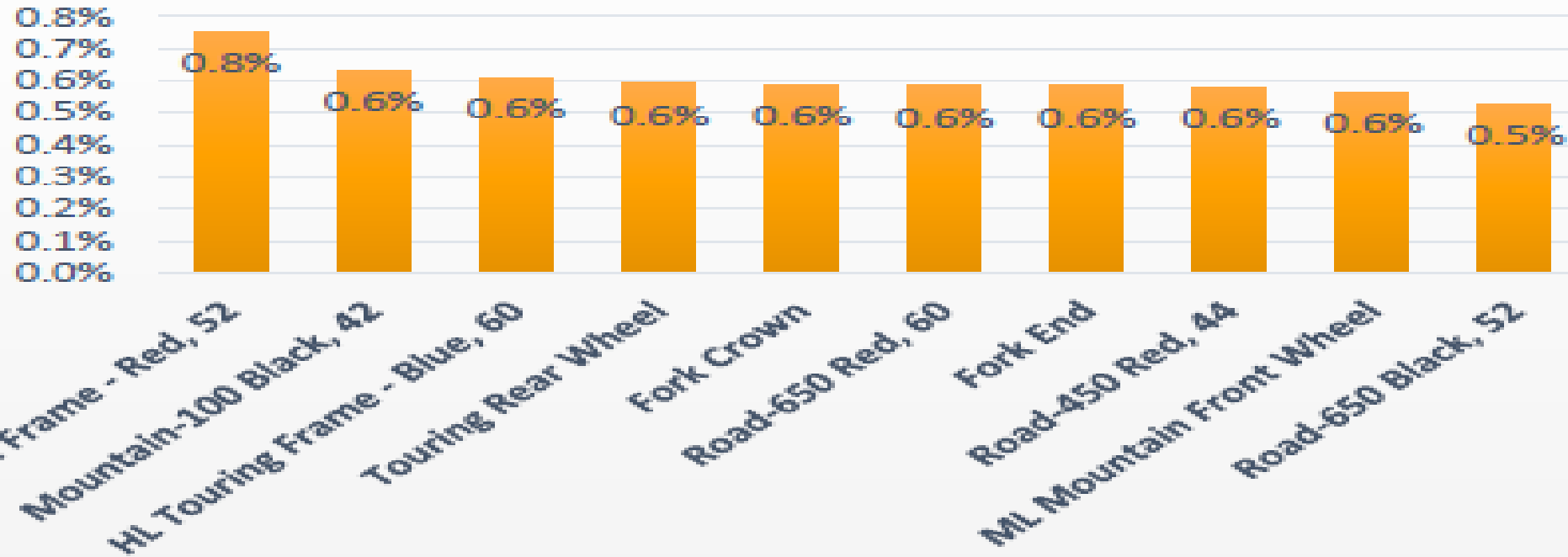
Areas AHG need to improve - Manufacturing



- There are lot of scrapped reasons that should be eliminated
- The average scrappedQty is 9%, it should be reduced to 3%
- Scrap reason should reviewed why above the average

Areas AHG need to improve - Manufacturing

Top 10 Products with higher % of Scrap



Comments

- The average of scrap per product are 0,2%.
- 10 Top Product should be review why is above the average.



Alternative shipping COY/Method should be introduced to create competition & reduce cost

3% of items received from supplier have been rejected-
improve to 2%

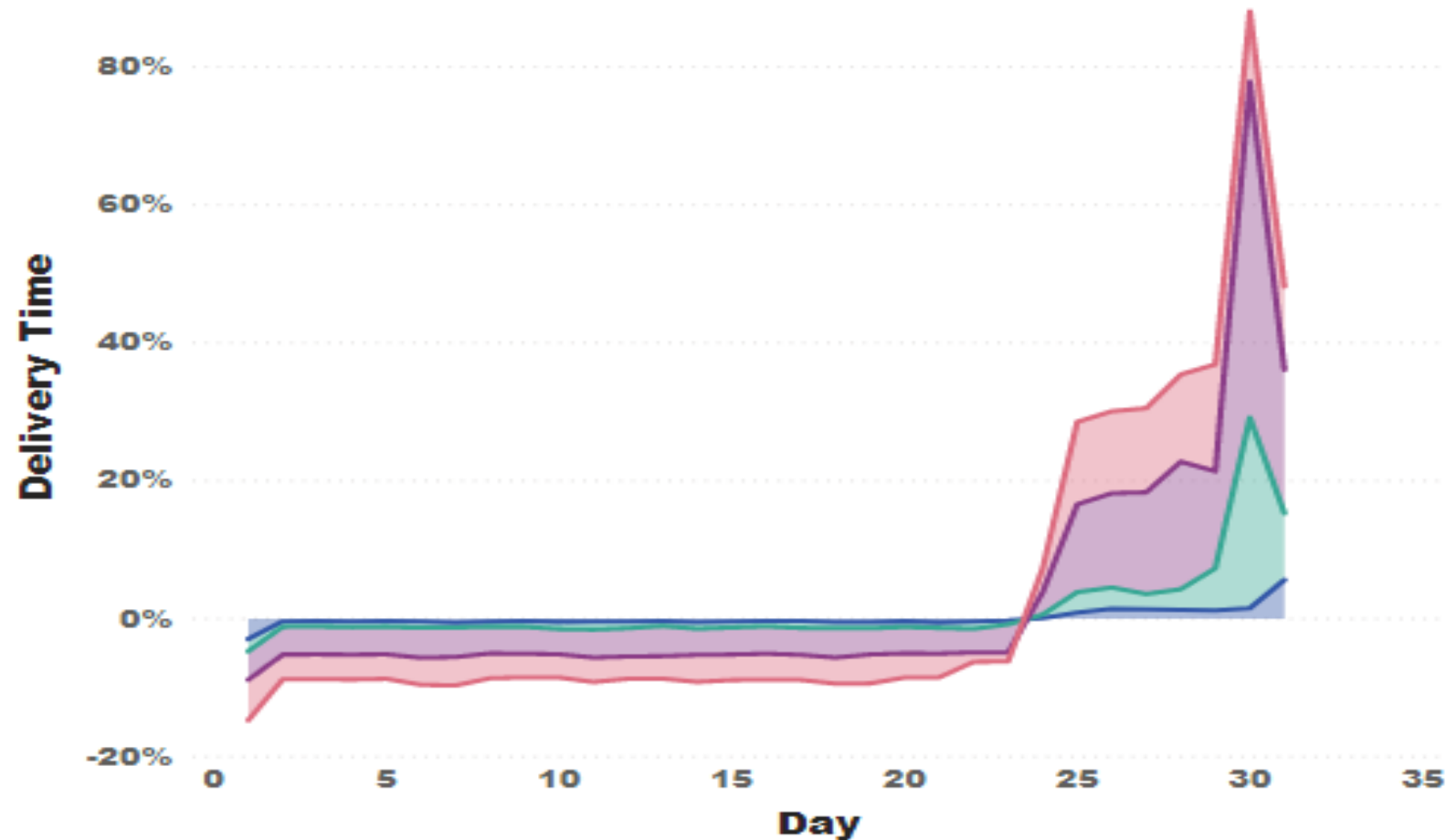
- The delivery period should be improved upon to enhance profitability, customer retention, customer excellence and satisfaction

Areas AHG need to improve –Supply Chain/Delivery Time

Delivery Time For The AHG Products

Delivery Time by Day

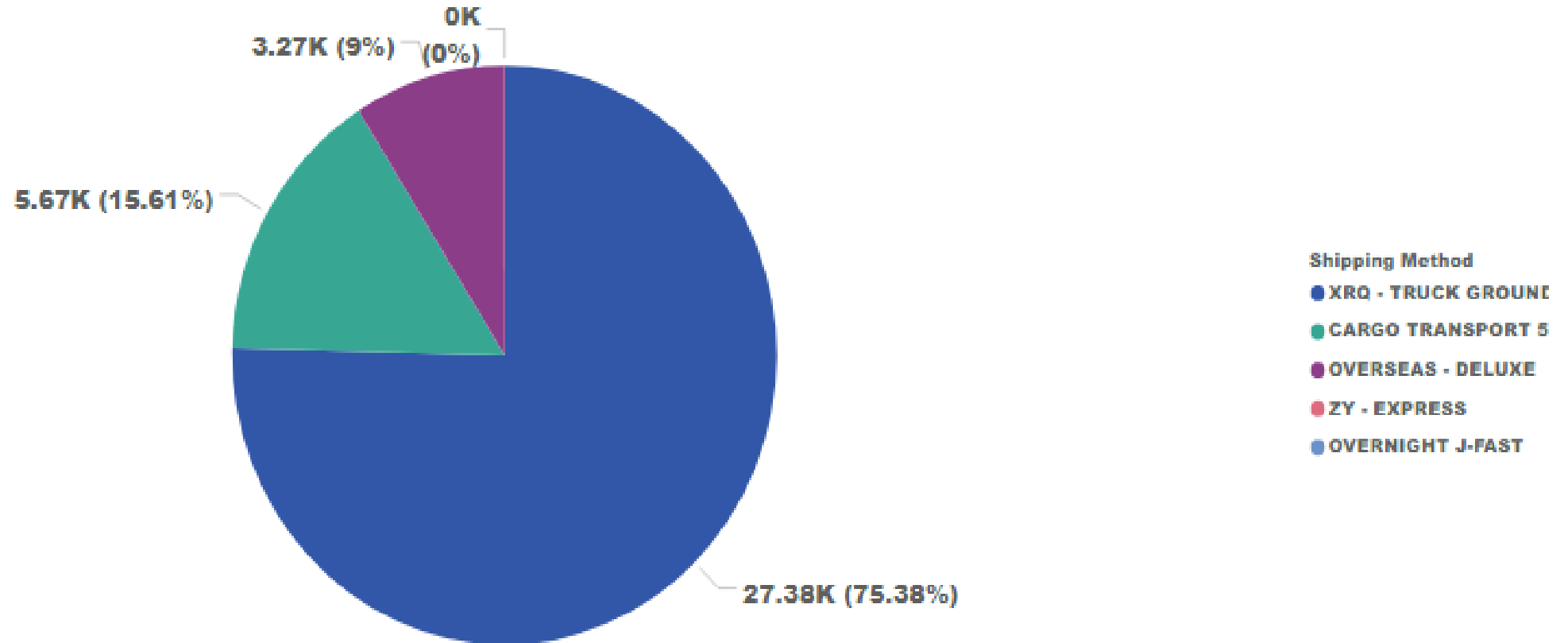
Year — 2011 — 2012 — 2013 — 2014



- The average delivery day is 7 days. In 2011, 6% of the goods were delivered within the stipulated days. In 2012, 25% of the goods were delivered within the expected period; the trend continued in a positive way with 46% delivery on time in 2013 before the decline in delivery time to 18% in 2014.
- The delivery period should be improved upon to enhance profitability, customer retention, customer excellence and satisfaction.

Areas AHG need to improve –Supply Chain

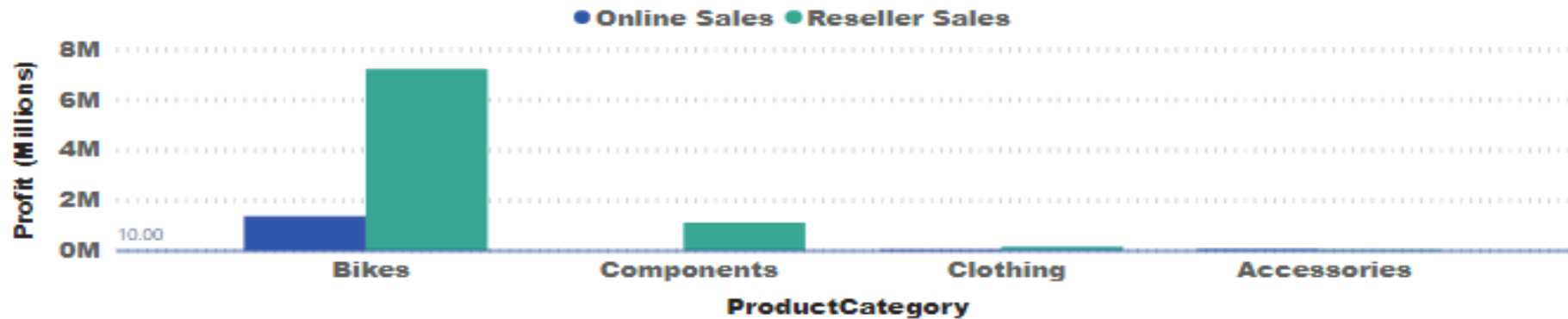
Shipping Method



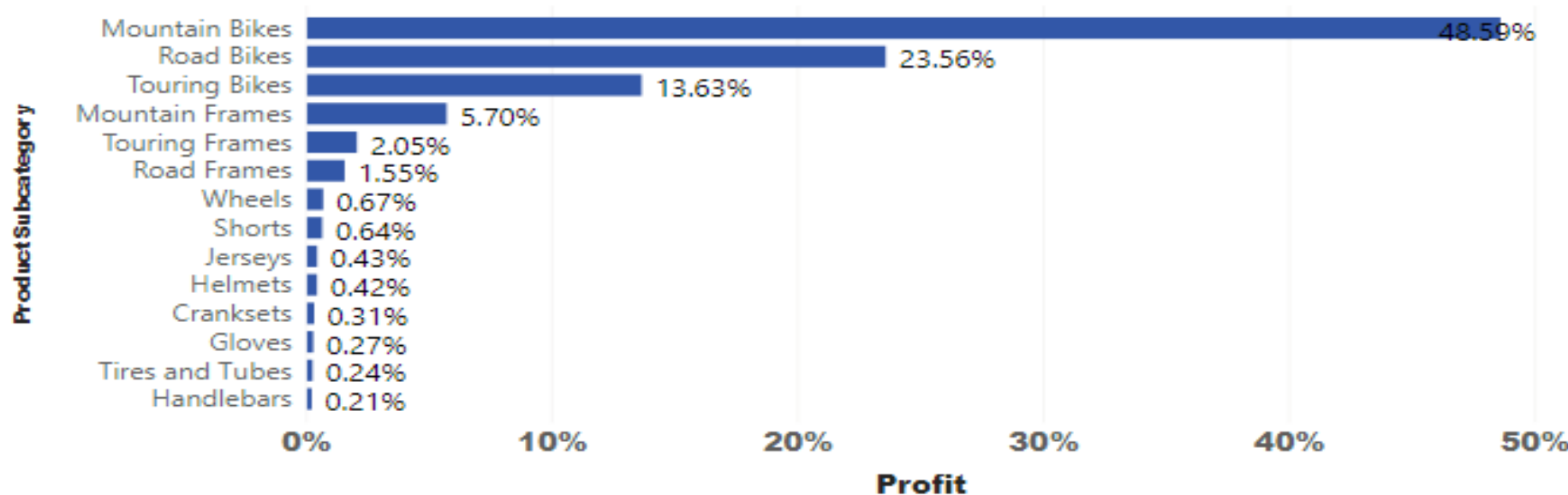
- Negotiation to reduce the transport cost of XRQ-TRUCK Ground
- Alternative delivery system/method should be introduced to create competition and to reduce cost
- Update the category of the supplier to distinguish between the preferred and not preferred supplier

Profitability of the business

Profit by ProductCategory



Profitability by ProductSubcategory

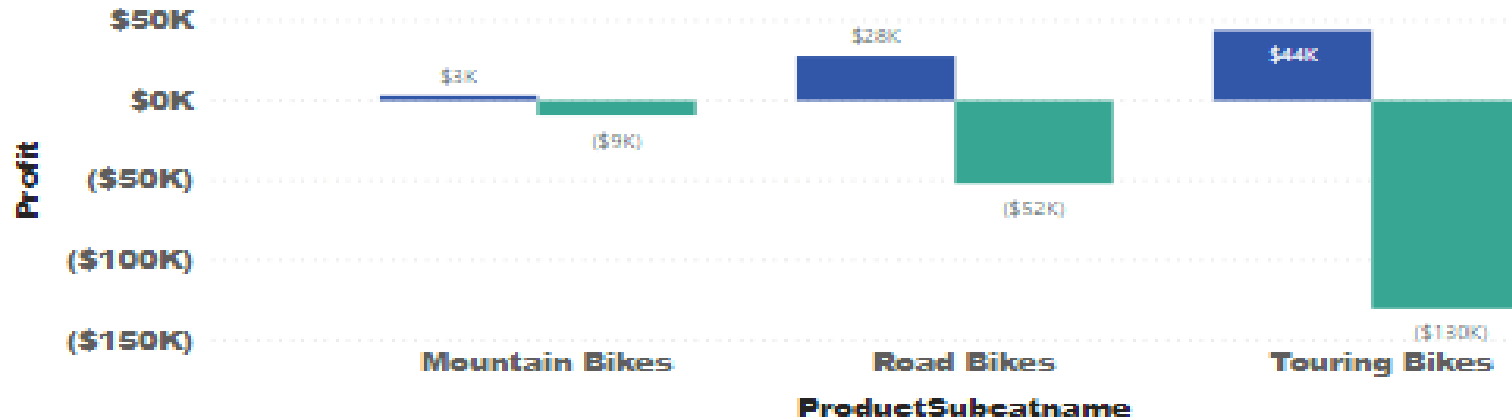


- Bike Online : Bikes is the most profitable products in the produtsubcategory contributing about 85% of total online sales. Road bikes represent 48%, MTB 23% & Touring bikes 14% respectively

Profitability of the business

Profit by ProductCategory

Sales_Channel ● Online ● Reseller



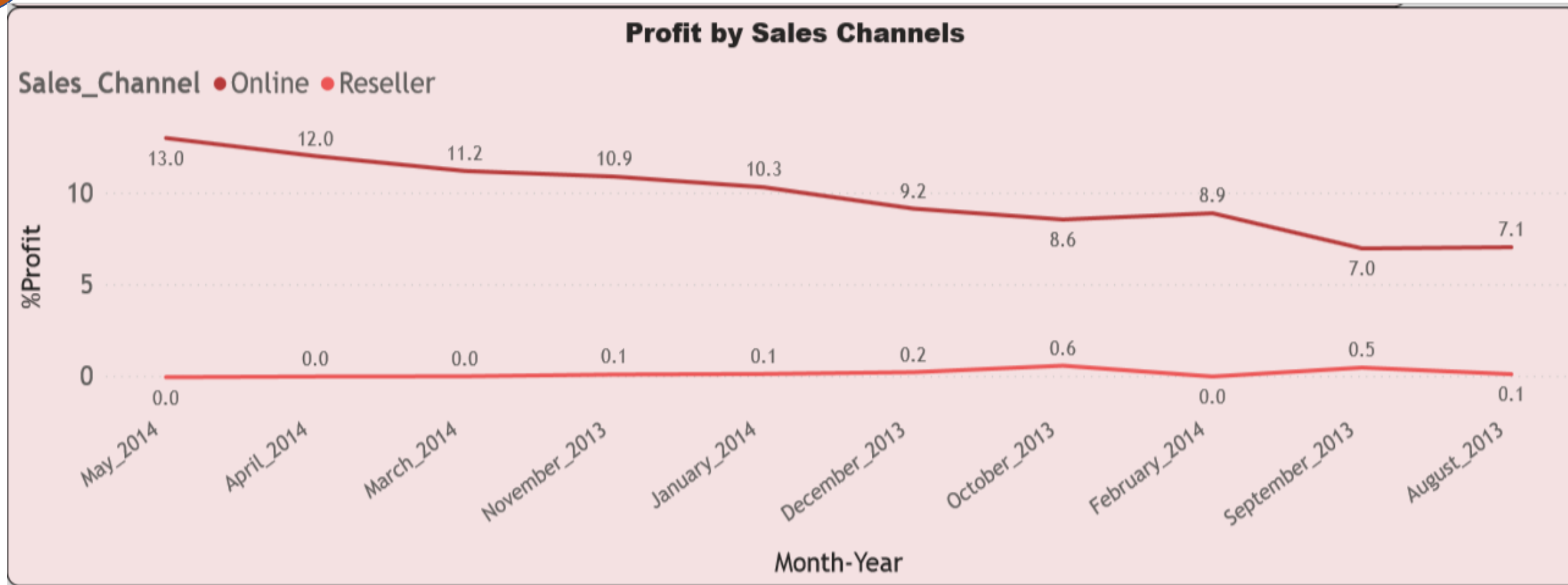
Bikes Reseller: 45% of total sales in Bikes in Reseller have been sold with negative profit. Monthly profit has been mostly negative or nearly break-even

Profit by Year

SalesChannels ● Online Sales ● Reseller Sales

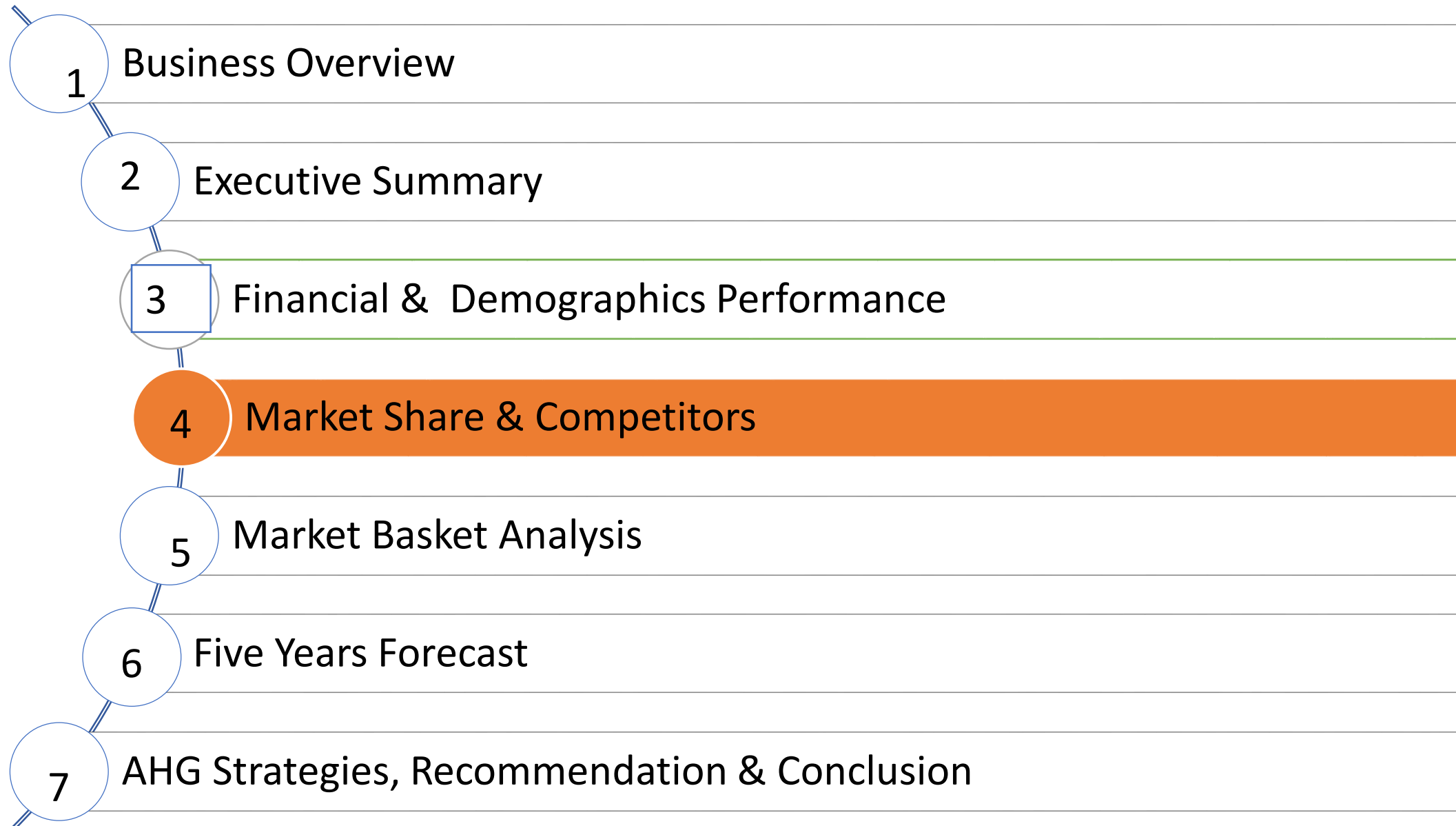


Profitability of the business



- Online Sales maintain a steady monthly profitability since 2011
- Reseller Sales has consistent monthly negative profit

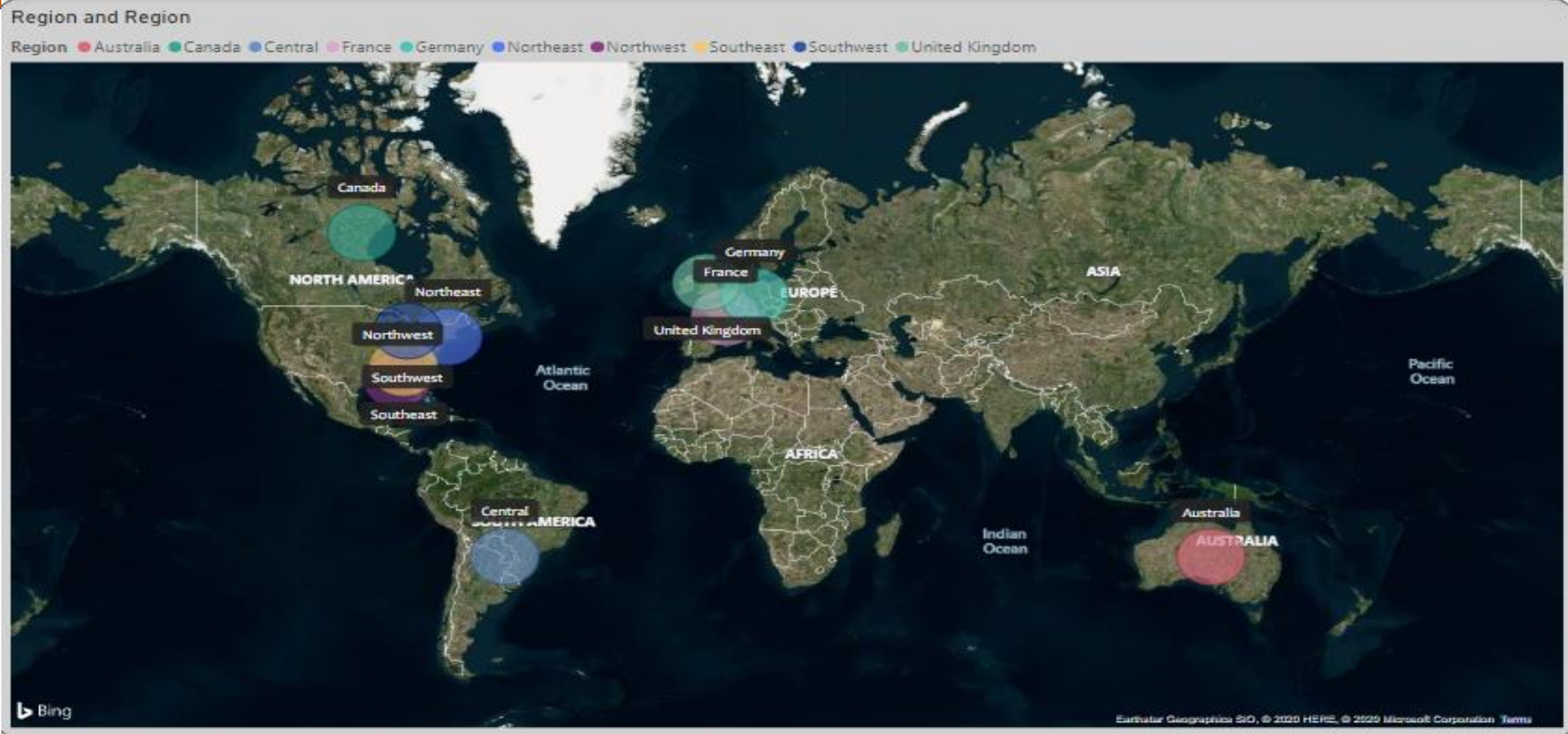
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4.1

Market Share Analysis

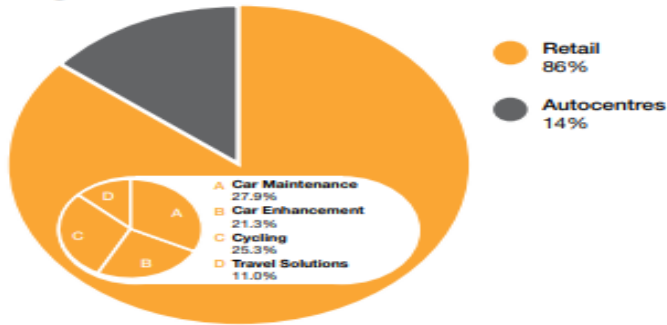


4.2 Market Share Analysis Halfords Vs AHG

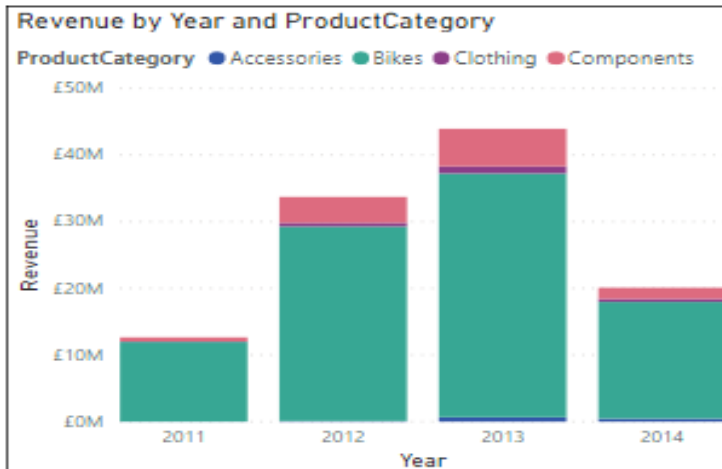
halfords

Segmental Summary

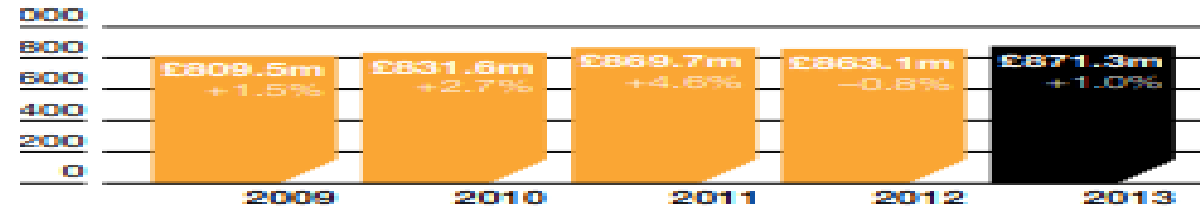
Group Revenue
£871.3m



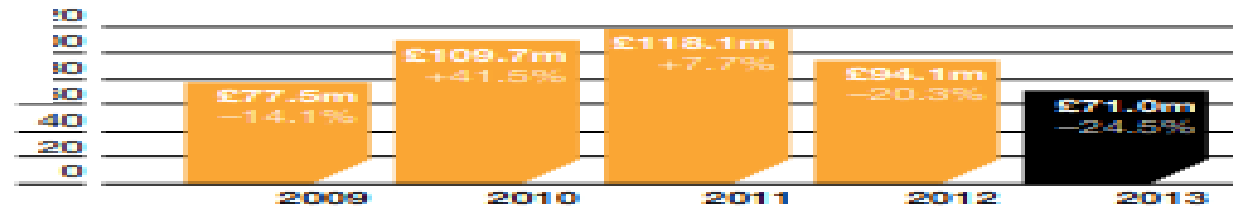
AHG Segmental Summary



Revenue
+1.0%



Profit before Tax
-24.5%



Financial

Halfords group revenue for product category was 871M pounds while AHG revenue was 110M pounds. Revenue grew by 1% for Halfords in 2013 while AHG revenue grew by 9% within the same period. Halfords profit was negative by 25%, but AHG profit grew by 10% within the same period 2013.

Bikes Categories

Halfords sell several categories of bikes, e.g. folding bike, hybrid bike, classic etc. while AHG sell only three types of bikes. AHG should diversify by selling additional brand of bikes to grow revenue and increase customer base.

Price

AHG price is not competitive compared with Halfords; price adjustment is recommended.

Bikes Category by Company

Company	Mountain Bikes	Road Bikes	Touring Bikes	BMX	Kids Bikes	Path & Pavement	City Bike	E-Bike	Track Bikes	Others
AHG (Global)	■	■	■							
Alltricks (France)	■	■		■			■			■
Bicycle Warehouse (US)	■	■		■	■	■		■		
Bicycles Online (Australia)	■	■		■	■	■		■		■
Bike Depot (Canada)	■	■		■	■			■		■
Bike-discount (Germany)	■	■			■		■	■	■	■
Wiggle (UK)	■	■	■	■	■		■	■	■	■

Comments

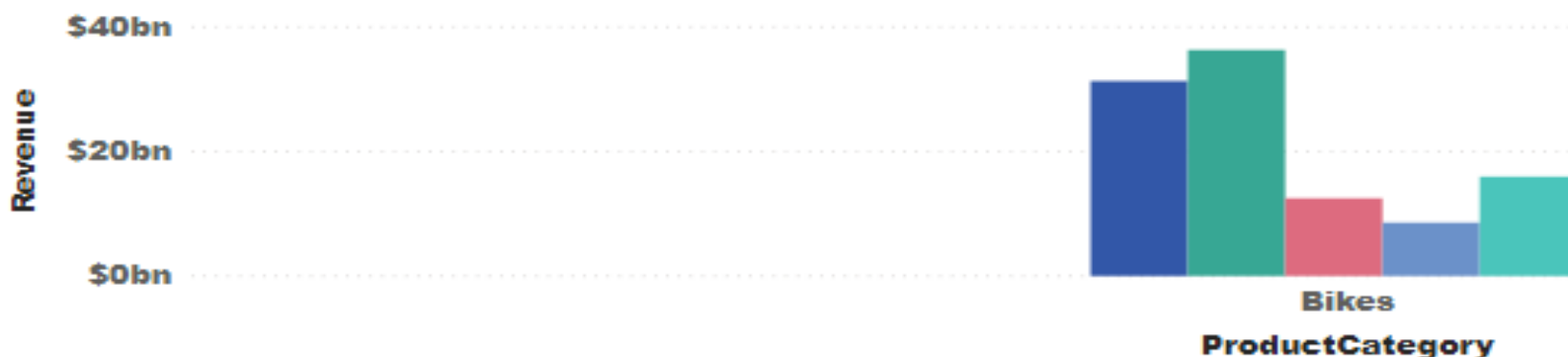
The e-Bike segment is predicted to reflect a compound annual growth rate of 45 to reach a market value of US\$ 24 Billion by 2024. According to the persistence market research report “ By the end of 2016, hybrid bicycles are anticipated to be the leading segment of the market and is expected to account for over 38% share of the market in the term of value, followed by the road and mountain segment

4.4

Market Share Analysis

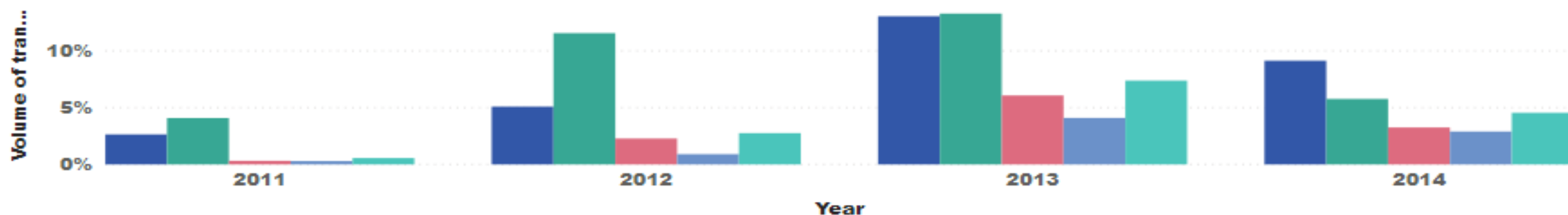
AHG Bikes Sales Across Major Region

Region ● Australia ● Canada ● France ● Germany ● United Kingdom



AHG Volume Transaction by Region 2011 - 2014

Region ● Australia ● Canada ● France ● Germany ● United Kingdom

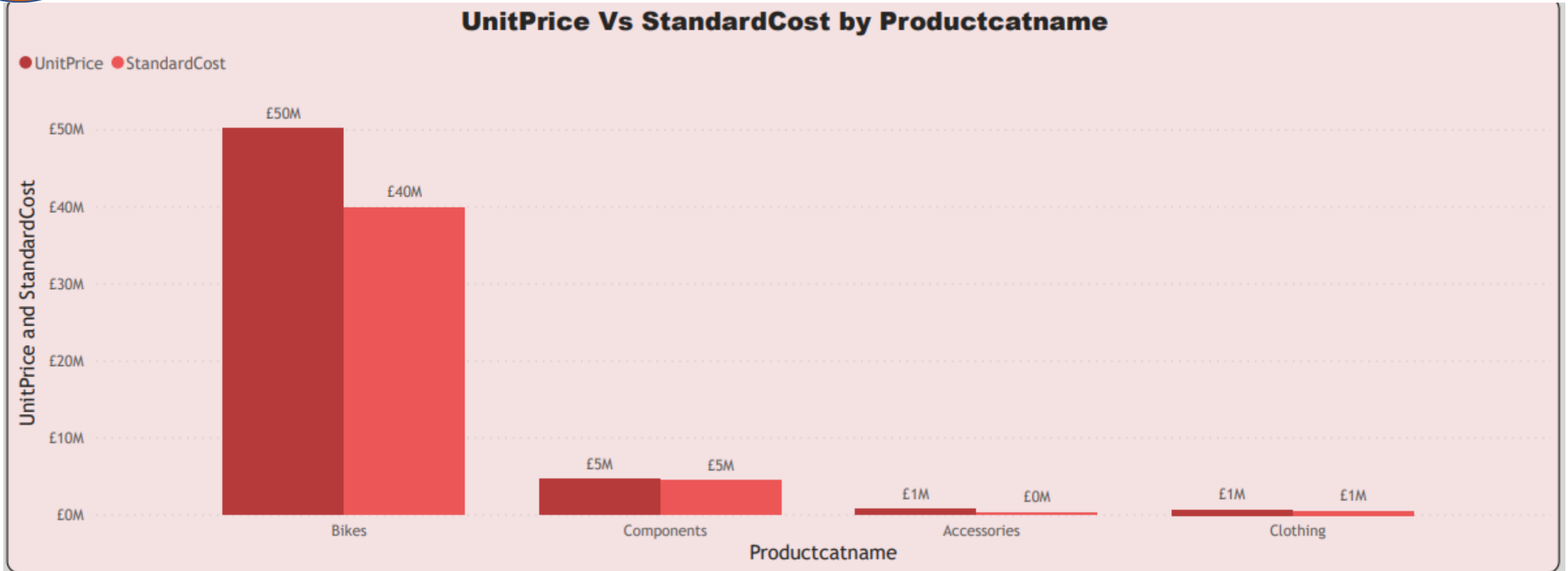


Comments:

Bikes market grow significant in Australia especially in 2013 by online sales
The UK market grew significantly in 2013 & 2014 by 5% & 3% respectively
The Canada bikes sales did very well on reseller in 2012 & 2013

4.5

Unit Price Vs Standard Cost

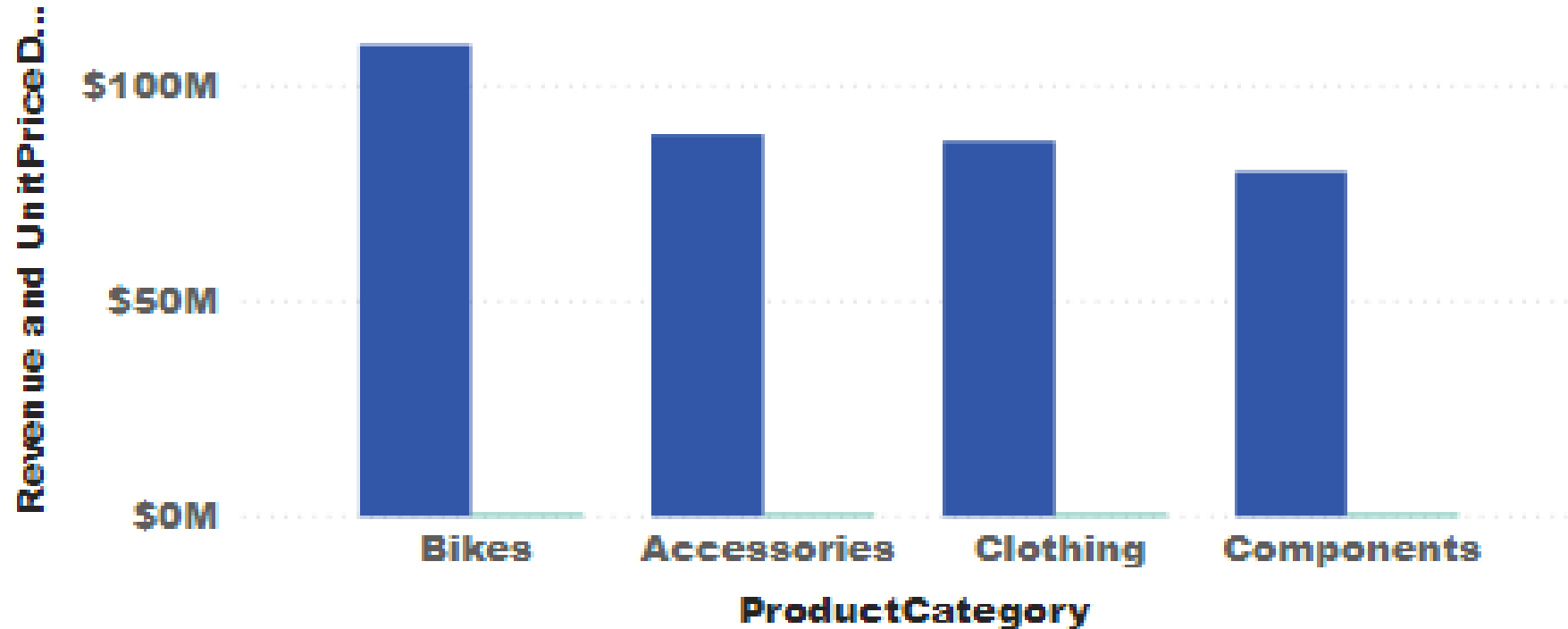


Remark

- Bike unit price is higher by 10m compare with standard cost
- Accessories unit price stand at 1m meanwhile and standard cost was zero
- Components and clothing unit price and standard cost are equal

UnitPriceDiscount by ProductCategory

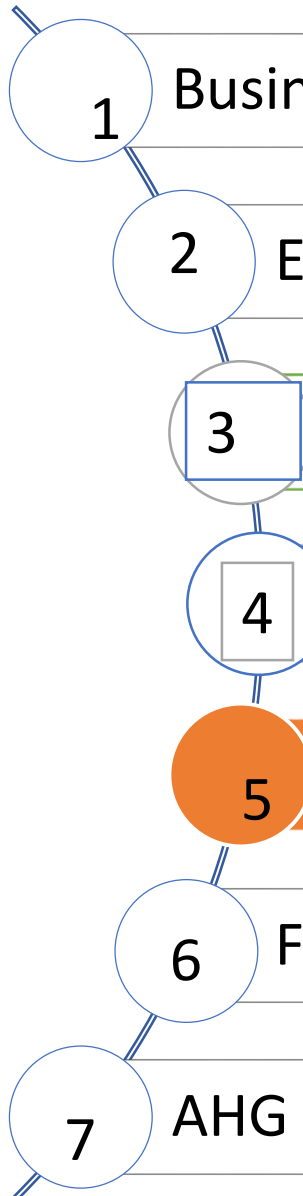
● Revenue ● UnitPriceDiscount



Remark

- The present discount policy is not effective and inadequate except for bikes that resulted in high revenue generation & profitability
- The AHG should implement a robust discount policies on other products that will impact positively on the company

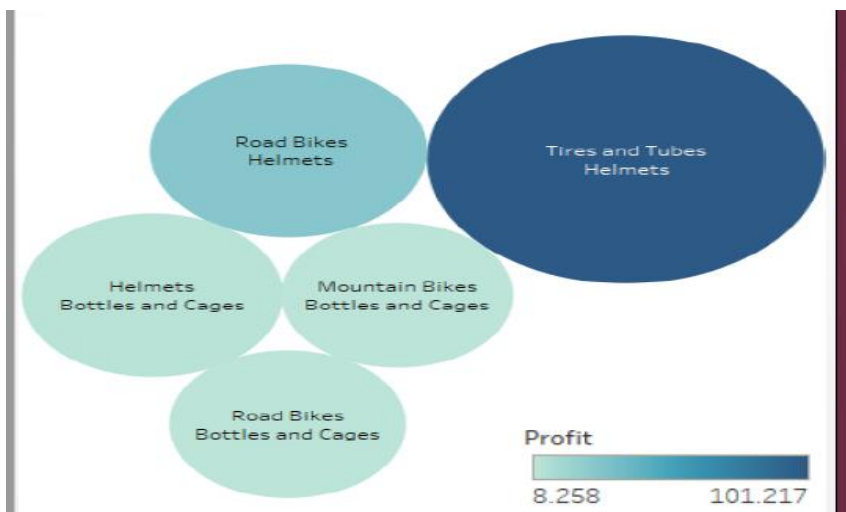
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- **Apriori Algorithm:** Apriori algorithm assumes that any subset of a frequent itemset must be frequent. It's the algorithm behind Market Basket Analysis
- MTB with Tire & Tubes / Road B. with Tire & Tubes / Helmets with Tire & Tubes
- The following Matrices could be used :Support, Confidence & lift



Products that are frequently purchased together:



Of transactions that included HELMETS:

- 41% Tires and Tubes
- 20% Road Bikes
- 14% Mountain Bikes



MTB with MTB Frames ,
Caps Jerseys ,Helmets
&Gloves

Products that are frequently purchased together:



Of transactions that included CAPS:

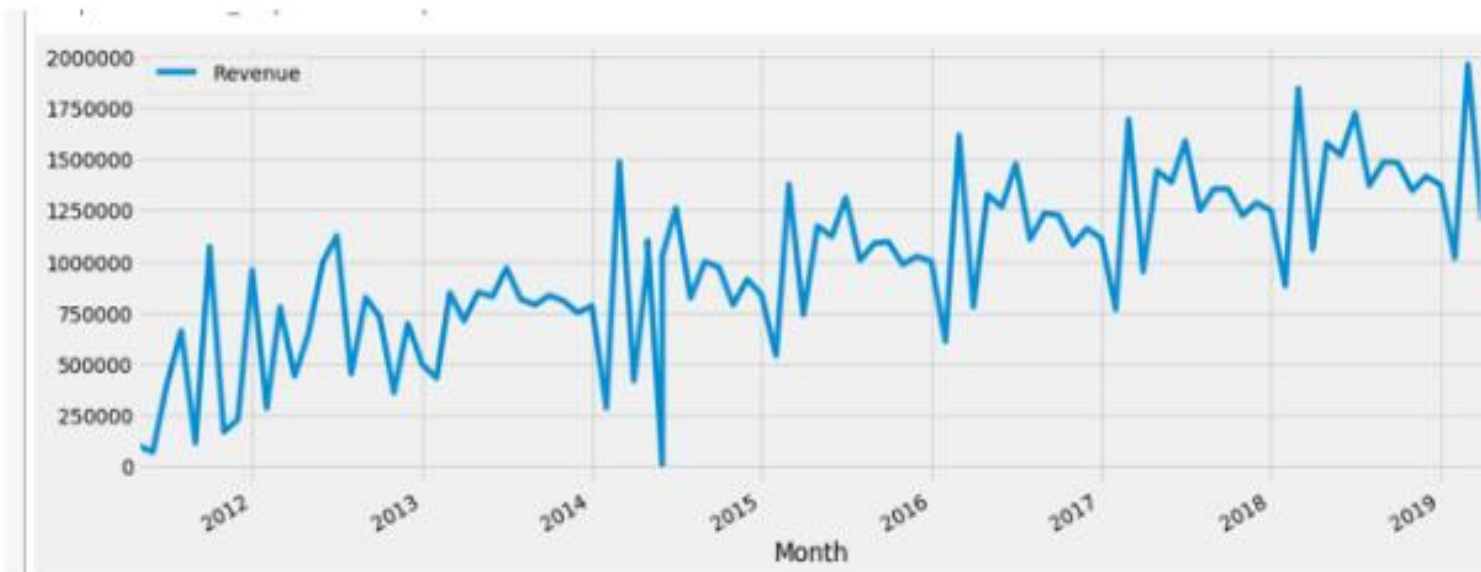
- 12% Jerseys
- 10% Helmets
- 7% Gloves

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**COMMENTS:**

Sales revenue was fluctuating. It grew up to Qtrs1 2012 and dropped in Qtrs2 2012 and the growth reach its peak in Qtrs3 2012. The region recorded highest revenue in the first quarter 2014 and lowest revenue in the Qtrs2 2014

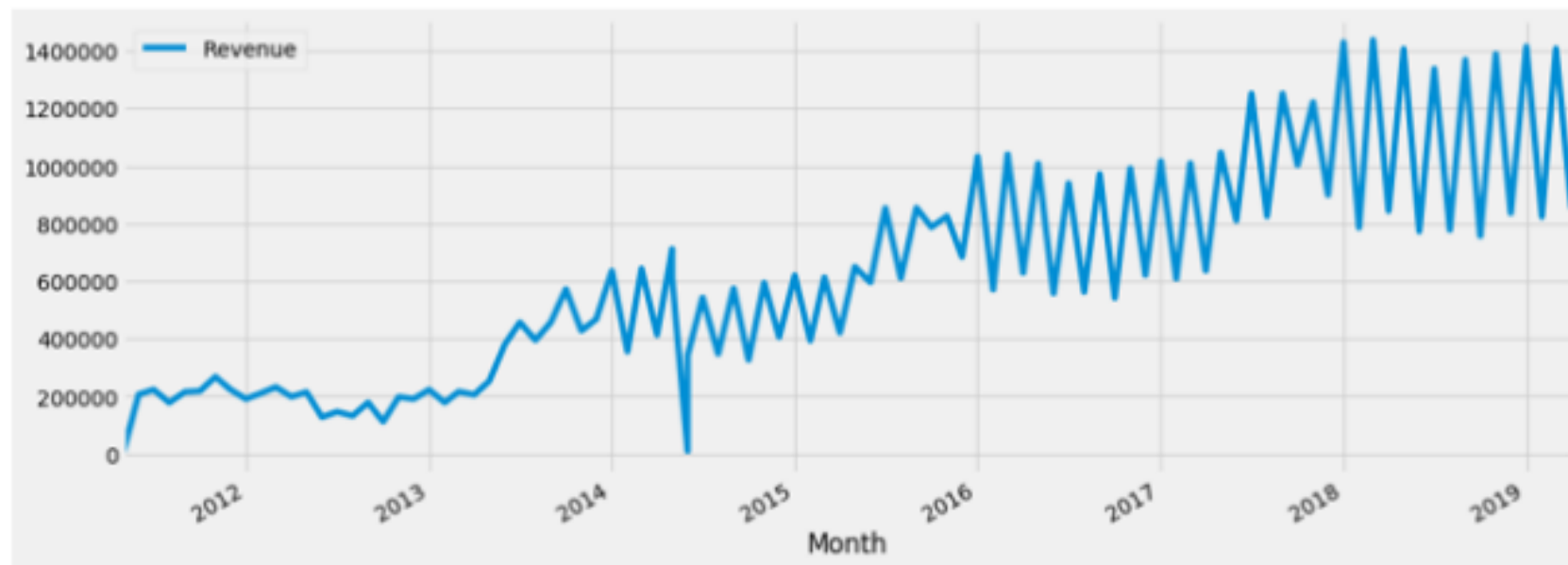


6.1

Five Years Sales Forecast Australia

**COMMENTS:**

There was consistent growth in online sales in the region which peak in Qtrs1 of 2014, then declined to the lowest point in the second quarter of 2014. The next five year will experience a slow steady growth

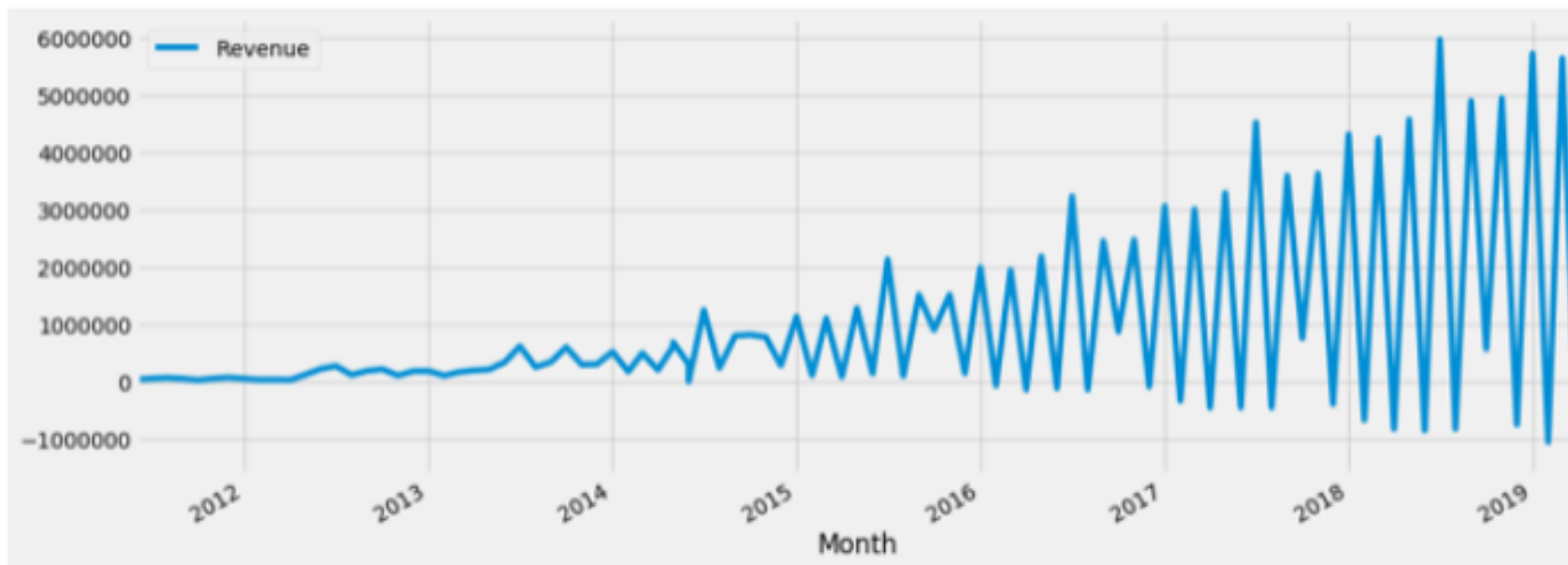


6.2 Five Years Sales Forecast United Kingdom



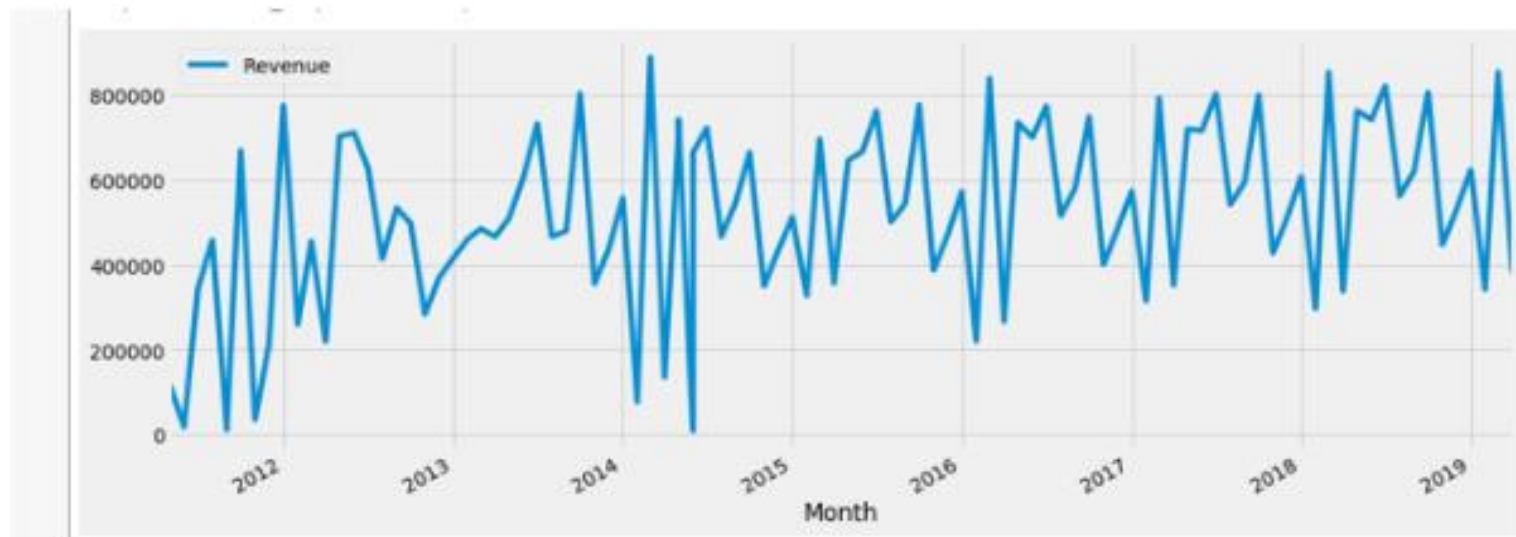
COMMENTS:

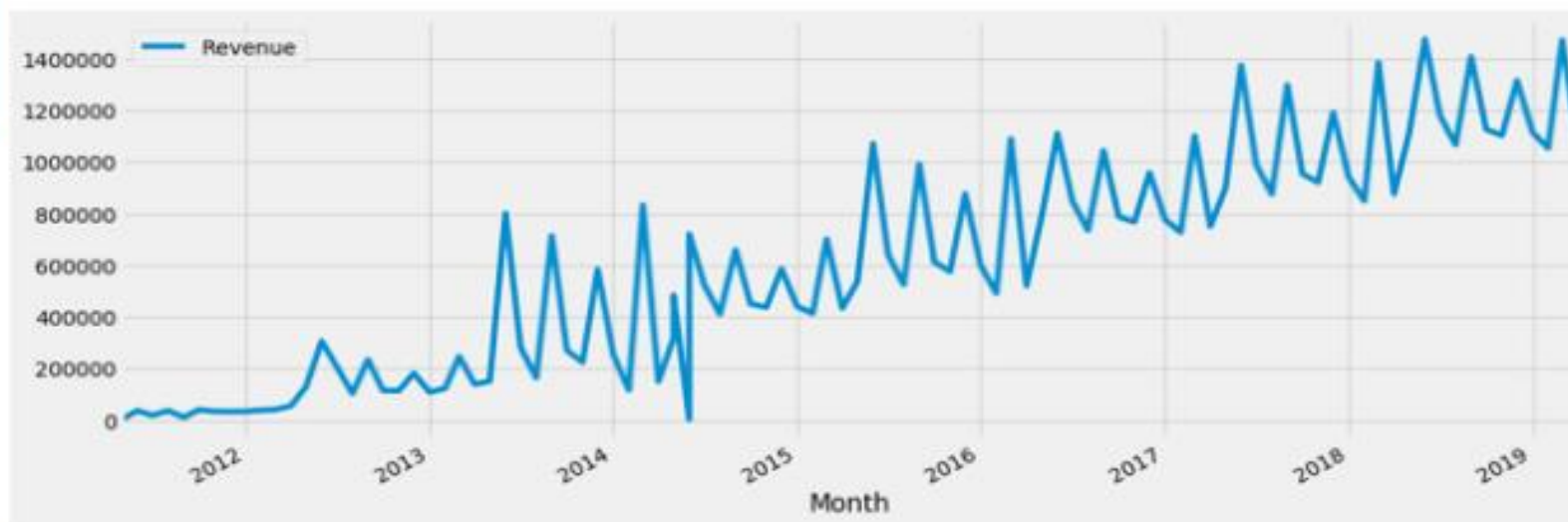
Revenue was at the peak in Qtrs 3 2014 , with fluctuating revenue growth pattern till 2019 as Predicted. the highest revenue is expected in the third 2018.



**COMMENTS:**

We notice that revenue reach it peak in first quarter 2014 and hit bottom of the graph in Qtrs2 2014 after which five year prediction show steady rise in the revenue till 2019 with occasional fluctuation.

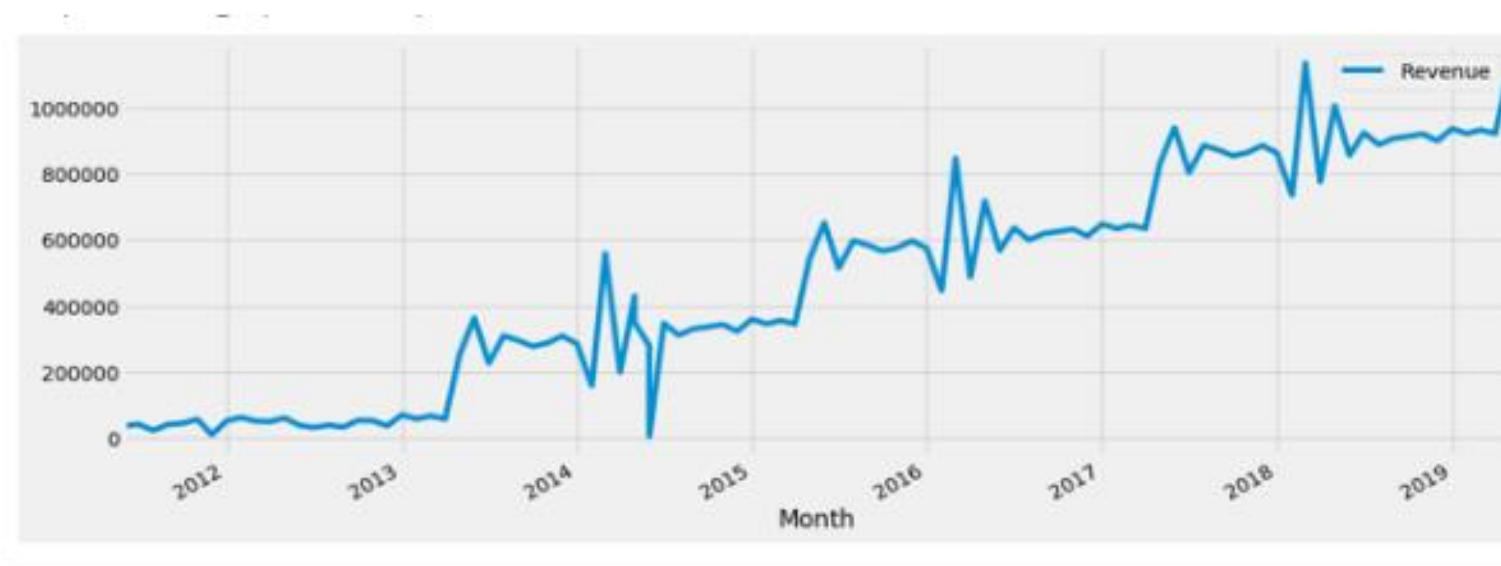


**COMMENTS:**

We notice that revenue reach it peak in first quarter 2014 and hit bottom of the graph in Qtrs2 2014 after which five year prediction show steady rise in the revenue till 2019 with occasional fluctuation.

6.5

Five Years Sales Forecast Germany

**COMMENTS:**

We notice that revenue reach it peak in first quarter 2014 and hit bottom of the graph in Qtrs2 2014 after which five year prediction show steady rise in the revenue till 2019 with occasional fluctuation.

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Introduce into the market **new products** that have a high penetration. Electronics Products like Computer smart Watch).

Introduction of new/additional products with high penetration base on market Research



Introduction of good rewarding system to increase sales (e.g. loyalty offer, discounting policy, free delivery, promotion)

Identify new regions that may need most of AHG products to increase market shares

- There is a clear shift, between May 2013 and July 2013, the number of Online transactions increased exponentially by 45%.
- The data also reveals that while Reseller Sales have provided overall greater revenue from 2011 to 2014, Online Sales surpassed Reseller Sales for the first time in the 1Q 2014.
- Australia is the only region with relevant conversion from reseller to online market
- According to the analysis of the market basket, the products that must be sold together based on profitability are the following:
 - Online –MTB with Tire & Tubes / Road B. with Tire & Tubes / Helmets with Tire & Tubes.
 - Reseller –MTB with MTB Frames & Short & Pedals.
- Shipping Cost is very high with some companies compared to others. A price policy must be established by centralizing the transportation companies with which AHG works.
- The Southeast US, Northeast US and Central US market has very slow reseller growth and contemptible online Sales. AHG should focus in a Welcome promotion or Loyalty offers.

- Open new online market in Northeast, Southeast and Central in US. Considering the average of online sales for the year 2013 (No Outlier) which would be 10% per region, this strategy could increase sales by 2.2M\$ and the profit by 1M\$ every year.
- AHG should maintain the Reseller Market in all the regions as soon as the new price policy in Reseller is established that negative margins are prevented.
- The minimum Price is higher than the average in MTB and Road then we should recommend a decrease of the minimum price in order to penetrate the low-cost market and its accessory products.
- AHG should introduce online “Components Category” therefore Cross selling could be increase.

A very big thank you to Barry, Ubong, and Michael Olabode for all their support through out this program

Appreciation to all pairview team especially the training support and admin team.

Special thanks to my Family (Debby, Favour, Faith and Faithful)